Appl. No.: 10/591,808

Amdt. Dated August 12, 2008

Response to Office Action Mailed March 12, 2008

REMARKS:

Applicant appreciates the time and care the examiner has taken in examining the application. Applicant requests reconsideration of the objections and the rejections of the claims, and states the following in support.

On the Drawing Objection. It is respectfully submitted that the features of the invention are shown in the drawings, and that the 37 CFR §1.83(a) objection should be withdrawn. The end plane (6) of one of the two rings (1, 2) is shown in FIG. 2, and is described in the written description at paragraph [0014] as published, U.S. Pat. App. Pub. No. 2007/0194537 A1. It is noted that the slide-ring gasket comprises two rings (1, 2). The translated specification refers to a slide-ring gasket, which, in common usage in the U.S. would typically be referred to as a face seal. The two rings (1, 2), specified as a slide-ring (1) and a counter-ring (2) in the translated specification are parts that would be typically referred to in common U.S. usage as seal rings. The claimed gasket comprises two rings (1, 2), each of said rings comprising an end plane (6) facing the end plane (6) of the other ring. Because the two rings (1, 2) are essentially identical to each other in all pertinent respects, FIG. 2 shows a sectional view of only the first one (1) of the two rings (1, 2). FIG. 1 shows the typical arrangement of two seal rings in a conventional face seal. The other drawing objections, to the extent they are understood, seem to relate to perceived lack of end planes (6) in the drawings, which is not the case, due to FIG. 2. It is therefore submitted that the drawing objections should be withdrawn.

On the Section 112, Second Paragraph Rejection. As to "end planes" (6), it is noted that the claimed gasket comprises two rings (1, 2), each of said rings comprising an end plane (6) facing the end plane (6) of the other ring. The end plane (6) of one (1) of the rings (1, 2) is shown in FIG. 2 and described in particular at paragraphs [0005] – [0006] and [0014] of the specification. It is submitted that the amendments to the claims obviate this rejection as to "end planes."

As to "X20 Cr13," the definition of the steel type "X20 Cr13" was made according to the DIN standardization system in use in Germany. The claim has been amended to obviate this rejection to specify the DIN classification. It is submitted that the DIN standardization is well known in the art. DIN type X20 Cr13 stainless steel can best be compared to type 420 steel under the AISI classification system typically used in the U.S., as evidenced by the attached exhibit, consisting of excerpts of sample commercial tables showing international steel standardization conversions between AISI and DIN classifications, among others.

The term "RM 800-950 N/m^2" contained typographical errors. The amendment corrects these errors, so that the term is expressed as "R_m=800-950 N/mm^2". "R_m" is a measurement value of the tensile strength of a material, and is typically known to those skilled in the art.

It is respectfully submitted that the term "annular sealing surfaces" has antecedent basis presented in the last paragraph of claim 1.

Therefore, it is submitted that the amendments address the issues raised by the examiner under Section 112, second paragraph, and it is requested that the rejection be reconsidered and withdrawn.

Section 102(b) Rejection and Section 103(a) Rejection. The rejection is traversed for at least the following reasons. Claim 1 as amended contains the limitations of "...the end planes (6) facing each other are undercut or formed offset in an axial direction respectively in an area following in a radial direction inwardly of the annular part section (5) so that with sliding

sealing, a clearance is formed; and a radial width of annular sealing surfaces of said rings (1, 2) is less than 30% of a radial reach of the end planes (6) facing each other in the slide-ring gasket." FIG. 2 of the cited reference Takeda, JP 58088267, shows a slide-ring gasket of stainless steel having a wear-resistant coating at end planes facing each other, but does not show the specific reduction of the size of the annular sealing surfaces facing each other set forth in the claim. It is pointed out that an embodiment according to FIG. 3 of JP 58088267 is shown to have the same area of sealing surface as in the embodiment according to FIG. 2 of JP 58088267. The embodiment according to FIG. 3 of JP 58088267 is in contradiction to the features set forth in amended claim 1, because a conical portion is provided following the annular sealing surface, instead of an axially recessed portion as provided in claim 1. The features set forth in claim 1 serve the object of detecting impermissible wear at a time at which the transport of dust- and dirt-particles to the inside of the compartments to be sealed can be ruled out with high accuracy. JP 58088267 does not deal at all with the problem of early detection of unacceptable levels of wear, as does the embodiment set forth in amended claim 1 herein, and hence cannot be compared to the present invention.

In the context of the present invention, it is of paramount importance that the radial width of the annular sealing surfaces be substantially reduced in relation to the radial width of the end planes facing each other, in order to cause leakage also with the occurrence of minimal damage, so that the effluence of lubricant becomes visible. With such a reduced radial width of the annular sealing surfaces it is feasible to make visible the effluence of lubricant droplets at an early time after impermissible wear has occurred -- not only after wear of the sealing surfaces has occurred to such an extent that dust and dirt particles can be transported into the inside of the compartment to be sealed. Only with the claimed limitation of the radial width of the annular sealing surfaces being less than 30% of the radial reach of the end planes facing each other, can there be achieved sufficient reduction of the sealing surfaces and, thus, timely determination of impermissible wear.

The same is true with respect to the other cited reference Peickii, US 3,086,782. This reference also lacks disclosure of the claimed combination of features: "...the end planes (6) facing each other are undercut or formed offset in an axial direction respectively in an area following in a radial direction inwardly of the annular part section (5) so that with sliding sealing, a clearance is formed; and a radial width of annular sealing surfaces of said rings (1, 2) is less than 30% of a radial reach of the end planes (6) facing each other in the slide-ring gasket."

Because Takeda fails to disclose the features relied upon by the examiner in making the Section 102(b) rejection, and because Peickii fails to supply the features missing from Takeda in order to render the claimed combination obvious, it is submitted that no prima facie cases supporting the Section 102(b) and Section 103(a) have been made.

Conclusion. Therefore, it is respectfully submitted that the rejections should be reconsidered and withdrawn; that the application is in condition for prompt allowance; and that all of the objections, rejections and requirements raised in the Office action have been met. Early, favorable treatment of this application is requested.

The examiner is encouraged to telephone the undersigned with any questions or comments so that efforts may be made to resolve any remaining issues.

Extension Request and Deposit Account Charge Authorization. The Commissioner is hereby authorized to charge any necessary fees, or credit any overpayment, associated with this communication, including fees for any necessary extension of time under 37 CFR §1.136(a) for filing this communication, which extension is hereby requested, to our Deposit Account No. 50-0305 of Chapman and Cutler LLP.

Respectfully submitted,

By: _____
Robert J Schneider, Reg. No. 27,383

Date: August 12, 2008
Attorneys for Applicant(s):
Robert J. Schneider
CHAPMAN AND CUTLER LLP
111 West Monroe Street, Suite 1700
Chicago, Illinois 60603-4080
Telephone: 312-845-3919

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. § 1.8

Attorney Docket Number:	1717743
App. Serial No.:	10/591,808
Date of Facsimile Transmission:	August 12, 2008
Transmitted to Facsimile No.:	1-571-273-8300

I hereby certify that the attached correspondence, namely: Response to Office Action, was transmitted by facsimile on the date listed above, to the U.S. Patent Office at the facsimile number listed above, under 37 C.F.R. § 1.8.

Signature: _____
Typed Name of Person Signing this Certificate: Robert J. Schneider

Date of Signature: August 12, 2008

MILLSTOCK STAINLESS

INTERNATIONAL COMPARISON OF STEEL GRADES

AISI	ASTM	UNS	EN	DIN	W.Nr.	
DUPLEX & SUPER DUPLEX STEELS						
Lean Duplex					1.4162	
Lean Duplex	S32304 / S39230		Z 3 CN 23.04 Az	X 2 CrNiN 23.4	1.4362	URANUS 35N / SAF 23.04
	S31260 / S39226		Z 3 CND 25.07 Az	X 2 CrNiMoN 25.7.4	1.4410	URANUS 47 N
329	S32900		Z 5 CND 27.05 Az	X 3 CrNiMoN 27.5.2	1.4460	SS 44
(329LN) / F51	S31803 / S39209		Z 3 CND 22.05 Az	X 2 CrNiMoN 22.5.3	1.4462	URANUS 45N / SAF 2205
F55	S32760			X 2 CrNiMoCuWN 25.7.4	1.4501	ZERON 100
	S32550 / S32750		Z 3 CNDU 25.07 Az	X 2 CrNiMoCuN 25.6.3	1.4507	URANUS 52N / SAF 25.07
	S24565			X 2 CrNiMnMoNbN 25.18.5.4	1.4565	4565 S / DUPLEX + 6 Mo
Cr + Ni STEELS						
304	S30400		Z 6 CN 18.09	X 5 CrNi 18.10	1.4301	
305			Z 8 CN 18.12	X 5 CrNi 18.12	1.4303	
303	S30300		Z 10 CNF 18.09	X 10 CrNiS 18.9	1.4305	
304L	S30403		Z 3 CN 18.10	X 2 CrNi 19.11	1.4306	
301	S30100		Z 11 CN 18.08	X 12 CrNi 17.7	1.4310	
304LN	S30453		Z 3 CN 18.10 Az	X 2 CrNiN 18.10	1.4311	
310L			Z 1 CN 25.20	X 1 CrNi 25.21	1.4335	URANUS 65 / SS25L
	S30600		Z 1 CNS 17.16	X 1 CrNiSi 18.15	1.4361	URANUS S1 / ANTINIT
321	S32100		Z 6 CNT 18.10	X 6 CrNiTi 18.10	1.4541	
347H	S34700		Z 6 CNNb 18.10	X 6 CrNiNb 18.10	1.4550	
Cr + Ni + Mo STEELS						
316	S31600		Z 7 CND 17.11.02	X 5 CrNiMo 17.12.2	1.4401	
316L	S31603		Z 3 CND 18.12.02	X 2 CrNiMo 17.13.2	1.4404	
316LN	S31653		Z 3 CND 17.11 Az	X 2 CrNiMoN 17.12.2	1.4406	
316LN (Mo+)	(S31653)		Z 3 CND 17.12 Az	X 2 CrNiMoN 17.13.3	1.4429	
316L (Mo+)	S31609		Z 3 CND 18.14.03	X 2 CrNiMo 18.14.3	1.4435	
316 (Mo+)			Z 6 CND 18.12.03	X 5 CrNiMo 17.13.3	1.4436	
317L	S31703		Z 3 CND 19.15.04	X 2 CrNiMo 18.16.4	1.4438	
317LN	S31726		Z 3 CND 18.14.05 Az	X 2 CrNiMoN 17.13.5	1.4439	
(317)			Z 6 CND 17.12.04	X 5 CrNiMo 17.13	1.4449	
	N08310 / S31050		Z 2 CND 25.25 Az	X 1 CrNiMoN 25.25.2	1.4465	
	S31050		Z 2 CND 25.22 Az	X 1 CrNiMoN 25.22.2	1.4466	
			Z 5 NCDUNb 20.18	X 4 NiCrMoCuNb 20.18.2	1.4505	
			Z 5 NCDUT 20.18	X 5 NiCrMoCuTi 20.18	1.4506	
	S31254(+/-)			X 5 NiCrMoCuN 25.20.6	1.4529	(254SMO) 19.25 Hmo
904L	N08904		Z 2 NCDU 25.20	X 1 NiCrMoCu 25.20.5	1.4539	URANUS B6 / 2 RK 65
	N08028		Z 1 NCDU 31.27.03	X 1 NiCrMoCu 31.27.4	1.4563	SANICRO 28
316Ti	S31635		Z 6 CNDT 17.12	X 6 CrNiMoTi 17.12.2	1.4571	
			Z 5 CNDT 25.25	X 3 CrNiMoTi 25.25	1.4577	
316Cb/Nb	S31640		Z 6 CNDNb 17.12	X 6 CrNiMoNb 17.12.2	1.4580	
318			Z 6 CNDNb 17.13	X 10 CrNiMoNb 18.12	1.4583	
Cr STEELS						
410S	S41008		Z 8 C 12	X 6 Cr 13	1.4000	
405	S40500		Z 8 CA 12	X 6 CrAl 13	1.4002	
416	S41600		Z 13 CF 13	X 12 CrS 13	1.4005	
410	S41000		Z 10 C 13	X 12 Cr 13	1.4006	
430	S43000		Z 8 C 17	X 6 Cr 17	1.4016	
420	S42000		Z 20 C 13	X 20 Cr 13	1.4021	
420S	J91201		Z 15 C 13	X 15 Cr 13	1.4024	
420	J91153		Z 33 C 13	X 30 Cr 13	1.4028	
(420)			Z 44 C 14	X 46 Cr 13	1.4034	
431	S43100		Z 15 CN 16.02	X 19 CrNi 17.2	1.4057	
430F	S43020		Z 13 CF 17	X 14 CrMoS 17	1.4104	
440B	S44003		Z 90 CDV 18	X 90 CrMoV 18	1.4112	
			Z 38 CD 16.01	X 39 CrMo 17.1	1.4122	
440C	S44004 / S44025		Z 100 CD 17	X 105 CrMo 17	1.4125	
430Ti	S43036 / S43900		Z 4 CT 17	X 5 CrTi 17	1.4510	
630	S17400		Z 7 CNU 17.04	X 5 CrNiCuNb 16.4	1.4542 / 1.4548	17.4 PH
631	S17700		Z 9 CAN 17.07	X 7 CrNiAl 17.7	1.4568	17.7 PH

- Telephone: 0044 (0) 1902 409 409
- Fax: 0044 (0) 1902 409 411
- Email: sales@millstockstainless.com

MARYLAND METRICS
phones: (410) 358-3130 (800) 638-1830
faxes: (410) 358-3147 (800) 872-9329
P O Box 261 Owings Mills, MD 21117 USA
6119 Oakleaf Avenue Baltimore, MD 21215 USA

Maryland Metrics: Technical Data Chart
INTERNATIONAL STANDARDS CONVERSION TABLE FOR STAINLESS STEEL
Including Chemical Composition & Mechanical Properties

This data chart is also available for downloading as a viewable/printable Acrobat PDF file.

U.S.A.	GERMANY	GERMANY	FRANCE	JAPAN	ITALY	SWEDEN	U.K.	E.U.	SPAIN	RUSSIA
AISI	DIN 17006	W.N. 17007	AFNOR	JIS	UNI	SIS	BSI	EURONORM	UNE	GOST
201				SUS 201						
301	X 12 CrNi 17 7	1.4310	Z 12 CN 17-07	SUS 301	X 12 CrNi 1707	23 31	301S21	X 12 CrNi 17 7	X 12 CrNi 17-07	
302	X 5 CrNi 18 7	1.4319	Z 10 CN 18-09	SUS 302	X 10 CrNi 1809	23 31	302S25	X 10 CrNi 18 9	X 10 CrNi 18-09	12KH18N9
303	X 10 CrNiS 18 9	1.4305	Z 10 CNF 18-09	SUS 303	X 10 CrNiS 1809	23 48	303S21	X 10 CrNiS 18 9	X 10 CrNiS 18-09	
303 Se			Z 10 CNF 18-09	SUS 303 Se	X 10 CrNiS 1809		303S41		X 10 CrNiS 18-09	12KH18N10E
304	X 5 CrNi 18 10 X 5 CrNi 18 12	1.4301 1.4303	Z 6 CN 18-09	SUS 304	X 5 CrNi 1810	23 32	304S15 304S16	X 6 CrNi 18 10	X 6 CrNi 18-10	08KH18N10 08KH18N11
304 N				SUS 304N1	X 5 CrNiN 1810					
304 H				SUS F 304H	X 8 CrNi 1910				X 6 CrNi 18-10	
304 L	X 2 CrNi 18 11	1.4306	Z 2 CN 18-10	SUS 304L	X 2 CrNi 1911	23 52	304S11	X 3 CrNi 18 10	X 2 CrNi 19-10	03KH18N11
	X 2 CrNiN 18 10	1.4311	Z 2 CN 18-10-Az	SUS 304LN	X 2 CrNiN 1811	23 71				
305			Z 8 CN 18-12	SUS 305	X 8 CrNi 1812	23 33	305S19	X 8 CrNi 18 12	X 8 CrNi 18-12	
			Z 6 CNU 18-10	SUS XM7				X 6 CrNiCu 18 10 4 Kd		
309	X 15 CrNiS 20 12	1.4828	Z 15 CN 24-13	SUH 309	X 16 CrNi 2314		309S24	X 15 CrNi 23 13		
309 S				SUS 309S	X 6 CrNi 2314			X 6 CrNi 22 13		
310	X 12 CrNi 25 21	1.4845		SUH 310	X 22 CrNi 2520		310S24			20KH23N18
310 S	X 12 CrNi 25 20	1.4842	Z 12 CN 25-20	SUS 310S	X 5 CrNi 2520	23 61		X 6 CrNi 25 20		10KH23N18

Chemical Composition

Standard of Counary					Chemical Composition							
USA	German		UK	Japan								
AISI	W-Nr	DIN KURZNAME	BS	JIS	C Max	SI Max	Mn Max	P max	S Max	Ni	Cr	Mo
301	14310	X12Cr Ni 177	301S21	SUS 301	0.15	1	2	0.045	0.03	6.00-8.00	16.00-18.00	-
304	14301	X0Cr Ni 189	304S16	SUS304	0.08	1	2	0.045	0.03	8.00-10.50	18.00-20.00	-
304L	14306	X3Cr Ni 89	304S12	SUS 304L	0.03	1	2	0.045	0.03	9.00-13.00	18.00-20.00	-
309	14303	X5Cr Ni 1911	309S19	SUS 309	0.12	1	2	0.045	0.03	10.60-13.00	17.00-19.00	-
310S	14841	X 15 Cr Ni Si 2520	310S24	SUS 310S	0.08	1.5	2	0.045	0.03	19.00-22.00	24.00-26.00	-
316	14401	X15 Cr Ni Mo 1810	316S16	SUS 316	0.08	1	2	0.045	0.03	10.00-14.00	16.00-18.00	2.00-3.00
316L	14435	X15 Cr Ni Mo 1812	316S12	SUS 316 L	0.03	1	2	0.045	0.03	12.00-15.00	16.00-18.00	2.00-3.00
430	14016	X8Cr 17	430S17	SUS 430	0.12	0.75	1	0.04	0.03	0.6	16.00-18.00	-
434	14113	-	-	SUS 434	0.12	1	1	0.04	0.03	0.6	16.00-18.00	0.75-1.25
410	14006	X10 Cr 13	[redacted]	SUS 410	0.15	1	1	0.04	0.03	0.6	11.50-13.50	-
420	14021	X 20 Cr 13	420S29	SUS 420 J1	0.16-0.25	1	1	0.04	0.03	0.6	12.00-14.00	-
420	14034	X 40 Cr 13	420S45	SUS 420 J2	0.26 - 0.40	1	1	0.04	0.03	0.6	12.00-14.00	-

Mechanical Properties

USA	German		UK	Japan	Tensile test (mm)				Hardness (Max)			
					YS		TS					
AISI	W-Nr	DIN KURZNAME	BS	JIS	kg/mm2	N/mm2	kgf/mm2	N/mm2	Elongation	HB	HRB	Hv
301	14310	X12Cr Ni 177	301S21	SUS 301	21	206	53	520	40	187	90	200
304	14301	X5Cr Ni 189	304S16	SUS304	21	206	53	520	40	187	90	200
304L	14306	X3Cr Ni 89	304S12	SUS 304L	18	177	49	481	40	187	90	200
305	14303	X5Cr Ni 1911	305S19	SUS 305	18	177	49	481	40	187	90	200
310S	14841	X 15 Cr Ni Si 2520	310S24	SUS 310S	21	206	53	520	40	187	90	200
316	14401	X15 Cr Ni Mo 1810	316S16	SUS 316	21	206	53	520	40	187	90	200
316L	14435	X15 Cr Ni Mo 1812	316S12	SUS 316 L	18	177	49	481	40	187	90	200
430	14016	X8Cr 17	430S17	SUS 430	21	206	46	451	22	183	88	200
434	14113	-	-	SUS 434	21	206	46	451	22	183	88	200
410	14006	X10 Cr 1	21	SUS 410	21	206	45	441	20	200	93	210
420	14021	X 20 Cr 13	420S29	SUS 420 J1	23	226	53	520	18	223	97	234
420	14034	X 40 Cr 13	420S45	SUS 420 J2	23	226	55	539	18	235	99	247